ECOC2S

Ecosystem services to enhance the resilience of coastal regions and communities to flood risks in a catchment to sea perspective

Water4All
Water security for the planet

Coordinated by Early Career Researcher

Abstract

Coastal and transitional systems provide critical ecosystem services (ES), including flood protection. The effects of climate change are increasing the hazard in such flood-prone areas, putting additional physical pressure on ES, while also adding pressure to the social system. This creates an urgent need for reliable methods of risk assessment, management and communication, as well as innovative approaches to community engagement towards building resilience.
This project will co-develop a holistic approach to flood risk assessment, quantifying the contribution of natural systems and blue-green infrastructure to flood protection in transitional and coastal areas and supporting the co-creation and further implementation of resilient pathways based on ES.

The project will focus on five different topics:

- co-identification of knowledge gaps and valuation of ecosystem services, following a participatory approach,
- characterization of the joint behavior of the geophysical preconditions of the catchment with the atmospheric and marine drivers at the coast,
- integrated modeling framework that includes eco-morphodynamic effects on compound flood hazard,
- co-creation of plausible future scenarios for sustainable and resilient ES, and
- establishment of a framework to guide the development of long-term mitigation measures and management strategies that enhance the resilience of human and natural coastal systems to extreme events.

The EcoC2S consortium consists of six partners with multidisciplinary and complementary expertise in the analysis and modeling of extreme hydrological events and their response to climate change, assessment and valuation of coastal ES, development and implementation of new flood management paradigms, and policy analysis, risk perception and communication.
EcoC2S will lead to scientific and technological advances in the development and application of holistic approaches to flood resilience in a catchment to sea perspective and will have a direct application in providing tools at the frontier of knowledge for the management and protection of coastal regions and communities.
It will contribute to topic 1 of the Water4All Joint Call by developing advanced methodologies for ES valuation, and to topic 2 by assessing human pressures on ecosystems and ES and developing resilience pathways for ecosystem protection and restoration. Engaging local communities and other stakeholders in the co-design and co-implementation of the proposed solutions, taking into consideration the barriers/resistance to the implementation of ES frameworks, contributes to topic 3.
The project will establish a two-tier scheme of Community of Practices (CoPs) to ensure the transferability of the project outputs to other European or international contexts and to support the dissemination of results.
This structured approach will facilitate exchange and learning among stakeholders at both the case study and EU levels and will also enhance the political, social, and practical applicability of the project results. The trans-project CoP promotes interaction with European research initiatives and actors to extend the reach and applicability of research findings.
Concurrently, at the local level, resilience and adaptation plans will be developed in collaboration with diverse sector stakeholders to tailor strategies to specific regional needs. Finally, the data and products developed can be integrated into climate services that can be used by different sectors of society, such as insurance companies and local to regional government.



Project coordinator

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Project partners

- UNIVERSITÀ POLITECNICA DELLE MARCHE - ITALY
- COOPERATIVA DE FORMAÇÃO E ANIMAÇÃO CULTURAL - PORTUGAL
- INSTYTUT GEOFIZYKI POLSKIEJ AKADEMII NAUK - POLAND
- UNIVERSITY OF SANTIAGO DE COMPOSTELA - SPAIN
- KARLSRUHE INSTITUTE OF TECHNOLOGY - GERMANY

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KEYWORDS

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catchment to sea
social dynamics
ecosystem valuation